

# RF Power MOSFET Transistor 80 W, 2 - 175 MHz, 28 V

Rev. V1

#### **Features**

- N- channel enhancement mode device
- DMOS structure
- · Lower capacitances for broadband operation
- High saturated output power
- · Lower noise figure than bipolar devices
- RoHS Compliant

#### **ABSOLUTE MAXIMUM RATINGS AT 25° C**

Parameter	Symbol	Rating	Units
Drain-Source Voltage	$V_{DS}$	65	V
Gate-Source Voltage	$V_{GS}$	20	V
Drain-Source Current	I <sub>DS</sub>	16	Α
Power Dissipation	P <sub>D</sub>	206	W
Junction Temperature	TJ	200	°C
Storage Temperature	T <sub>STG</sub>	-65 to +150	°C
Thermal Resistance	$\theta_{JC}$	0.85	°C/W

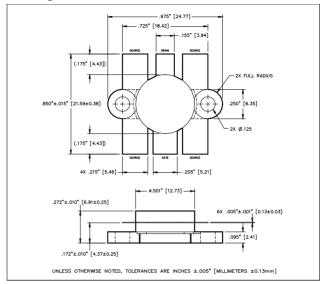
#### TYPICAL DEVICE IMPEDANCE

F (MHz)	Z <sub>IN</sub> (Ω)	Z <sub>LOAD</sub> (Ω)		
30	5.4 - j4.4	5.7 +j4.7		
50	2.5 - j4.4 3.4 + j3.5			
100	1.6 - j3.4	2.4 + j2.4		
175 0.7 - j1.2 1.7 + j0.8				
V <sub>DD</sub> = 28V, I <sub>DQ</sub> = 400mA, P <sub>OUT</sub> = 80 W				

 $Z_{\text{IN}}$  is the series equivalent input impedance of the device from gate to source.

 $Z_{\text{LOAD}}$  is the optimum series equivalent load impedance as measured from drain to ground.

## **Package Outline**



LETTER	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
А	24.38	25.15	.960	990
В	18.29	18.54	.720	.730
С	21.36	21.74	.841	.856
D	12.60	12.85	.496	.506
E	5.33	5.59	.210	.220
F	5.08	5.33	.200	.210
G	3.81	4.06	.150	.160
Н	3.10	3.15	.122	.128
J	2.51	2.67	.099	.105
К	4.06	4.57	.160	.180
L	6.68	7.49	.263	.295
М	.10	.15	.004	.005

## **ELECTRICAL CHARACTERISTICS AT 25°C**

Parameter	Symbol	Min	Max	Units	Test Conditions
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	65	-	V	V <sub>GS</sub> = 0.0 V , I <sub>DS</sub> = 20.0 mA
Drain-Source Leakage Current	I <sub>DSS</sub>	-	4.0	mA	$V_{GS} = 28.0 \text{ V}$ , $V_{GS} = 0.0 \text{ V}$
Gate-Source Leakage Current	I <sub>GSS</sub>	-	4.0	μA	V <sub>GS</sub> = 20.0 V , V <sub>DS</sub> = 0.0 V
Gate Threshold Voltage	$V_{GS(TH)}$	2.0	6.0	V	V <sub>DS</sub> = 10.0 V , I <sub>DS</sub> = 400.0 mA
Forward Transconductance	G <sub>M</sub>	2.0	-	S	$V_{DS}$ = 10.0 V , $I_{DS}$ = 4.0 A , $\Delta$ $V_{GS}$ = 1.0V, 80 $\mu$ s Pulse
Input Capacitance	C <sub>ISS</sub>	-	180	pF	V <sub>DS</sub> = 28.0 V , F = 1.0 MHz
Output Capacitance	Coss	-	160	pF	V <sub>DS</sub> = 28.0 V , F = 1.0 MHz
Reverse Capacitance	C <sub>RSS</sub>	-	32	pF	V <sub>DS</sub> = 28.0 V , F = 1.0 MHz
Power Gain	G <sub>P</sub>	13	-	dB	$V_{DD}$ = 28.0 V, $I_{DQ}$ = 400 mA, $P_{OUT}$ = 60.0 W F =175 MHz
Drain Efficiency	ŋ <sub>D</sub>	60	-	%	V <sub>DD</sub> = 28.0 V, I <sub>DQ</sub> = 400 mA, P <sub>OUT</sub> = 60.0 W F =175 MHz
Load Mismatch Tolerance	VSWR-T	-	30:1	-	V <sub>DD</sub> = 28.0 V, I <sub>DQ</sub> = 400 mA, P <sub>OUT</sub> = 60.0 W F =175 MHz

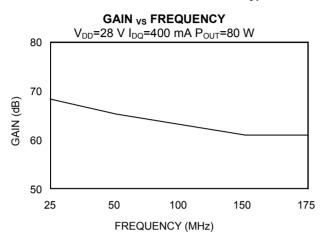
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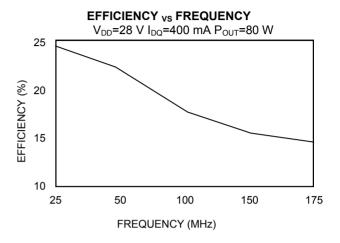


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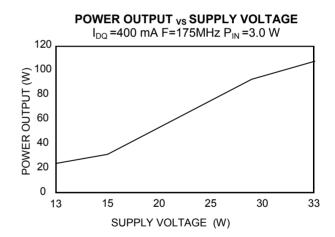
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### **Typical Broadband Performance Curves**





#### POWER OUTPUT $_{\mbox{\scriptsize VS}}$ POWER INPUT $V_{DD} = 28 \text{ V } I_{DQ} = 400 \text{ mA}$ 120 POWER OUTPUT (W) 9 8 00 30MH . 175MHz 100MHz 0 0.2 2 3 4 0.1 0.3 1 5 POWER INPUT (W)

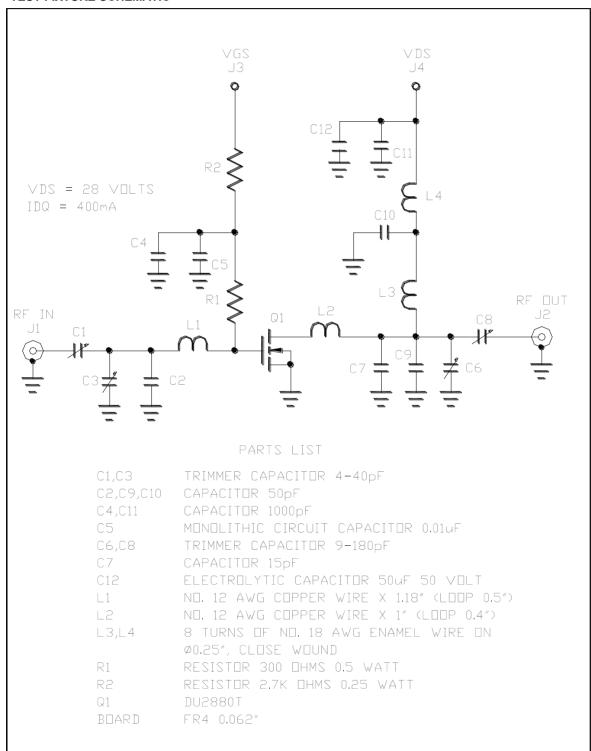




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#### **TEST FIXTURE SCHEMATIC**



# **DU2880T**



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